

**ABSTRACT**

A switching power supply includes: a first series circuit, connected to both terminals of a direct current power supply  $V_{dc1}$ , in which a primary winding 5a of a transformer T, a reactor L3 and a first switch Q1 are connected in series; a second series circuit, connected to both terminals of the primary winding 5a and the reactor L3, which includes a switch Q2 and a capacitor C3; a smoothing circuit D1, D2, L1, C4; and a control circuit 10 alternately turning on and turning off the switches Q1, Q2. The transformer T includes: a main core 21, formed with a magnetic circuit, on which the primary and secondary windings 5a, 5b are wound with a given gap 23; and a plurality of auxiliary cores 24a, 24b disposed in the given gap 23 with a given distance in a circumferential direction of the primary winding 5a. Further, the reactor L3 is formed of a leakage inductance of the transformer T.